

# PATENT COOPERATION TREATY

# PCT

## INTERNATIONAL PRELIMINARY EXAMINATION REPORT

(PCT Article 36 and Rule 70)

REC'D 14 DEC 2004

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Applicant's or agent's file reference <b>21042WO</b>	<b>FOR FURTHER ACTION</b> See Notification of Transmittal of International Preliminary Examination Report (Form PCT/IPEA/416)	
International application No. <b>PCT/NL 03/00474</b>	International filing date ( <i>day/month/year</i> ) <b>27.06.2003</b>	Priority date ( <i>day/month/year</i> ) <b>05.07.2002</b>
International Patent Classification (IPC) or both national classification and IPC <b>C10G70/06</b>		
Applicant <b>SABIC HYDROCARBONS BV</b>		

1. This international preliminary examination report has been prepared by this International Preliminary Examining Authority and is transmitted to the applicant according to Article 36.
  
2. This REPORT consists of a total of 5 sheets, including this cover sheet.
 

☐ This report is also accompanied by ANNEXES, i.e. sheets of the description, claims and/or drawings which have been amended and are the basis for this report and/or sheets containing rectifications made before this Authority (see Rule 70.16 and Section 607 of the Administrative Instructions under the PCT).

These annexes consist of a total of    sheets.

3. This report contains indications relating to the following items:
 

I    ☒ Basis of the opinion

II   ☐ Priority

III ☐ Non-establishment of opinion with regard to novelty, inventive step and industrial applicability



IV   ☐ Lack of unity of invention

V    ☒ Reasoned statement under Rule 66.2(a)(ii) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement

VI   ☐ Certain documents cited

VII ☐ Certain defects in the international application

VIII ☐ Certain observations on the international application

Date of submission of the demand  <b>05.02.2004</b>	Date of completion of this report  <b>14.12.2004</b>
Name and mailing address of the international preliminary examining authority:   European Patent Office - P.B. 5818 Patentlaan 2 NL-2280 HV Rijswijk - Pays Bas Tel. +31 70 340 - 2040 Tx: 31 651 epo nl Fax: +31 70 340 - 3016	Authorized Officer  <b>Bertin-van Bommel, S</b>  Telephone No. +31 70 340-4231  

**INTERNATIONAL PRELIMINARY  
EXAMINATION REPORT**

International application No. PCT/NL 03/00474

**I. Basis of the report**

1. With regard to the **elements** of the international application (*Replacement sheets which have been furnished to the receiving Office in response to an invitation under Article 14 are referred to in this report as "originally filed" and are not annexed to this report since they do not contain amendments (Rules 70.16 and 70.17):*

**Description, Pages**

1-7 as originally filed

**Claims, Numbers**

1-10 as originally filed

**Drawings, Sheets**

1/2-2/2 as originally filed

2. With regard to the **language**, all the elements marked above were available or furnished to this Authority in the language in which the international application was filed, unless otherwise indicated under this item.

These elements were available or furnished to this Authority in the following language: , which is:

- ☐ the language of a translation furnished for the purposes of the international search (under Rule 23.1(b)).
- ☐ the language of publication of the international application (under Rule 48.3(b)).
- ☐ the language of a translation furnished for the purposes of international preliminary examination (under Rule 55.2 and/or 55.3).

3. With regard to any **nucleotide and/or amino acid sequence** disclosed in the international application, the international preliminary examination was carried out on the basis of the sequence listing:

- ☐ contained in the international application in written form.
- ☐ filed together with the international application in computer readable form.
- ☐ furnished subsequently to this Authority in written form.
- ☐ furnished subsequently to this Authority in computer readable form.
- ☐ The statement that the subsequently furnished written sequence listing does not go beyond the disclosure in the international application as filed has been furnished.
- ☐ The statement that the information recorded in computer readable form is identical to the written sequence listing has been furnished.

4. The amendments have resulted in the cancellation of:

- ☐ the description, pages:
- ☐ the claims, Nos.:
- ☐ the drawings, sheets:

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5. ☐ This report has been established as if (some of) the amendments had not been made, since they have been considered to go beyond the disclosure as filed (Rule 70.2(c)).

*(Any replacement sheet containing such amendments must be referred to under item 1 and annexed to this report.)*

6. Additional observations, if necessary:

**V. Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement**

1. Statement

Novelty (N)	Yes: Claims	1-10
	No: Claims	
Inventive step (IS)	Yes: Claims	2-7, 9
	No: Claims	1,8,10
Industrial applicability (IA)	Yes: Claims	1-10
	No: Claims	

2. Citations and explanations

**see separate sheet**

**Re Item V**

**Reasoned statement with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement**

1. Reference is made to the following documents:

D1: US-A-5 520 724 (BAUER HEINZ ET AL) 28 May 1996 (1996-05-28)

D2: FR-A-2 797 640 (INST FRANCAIS DU PETROL) 23 February 2001 (2001-02-23)

2. The document D1 is regarded as being the closest prior art to the subject-matter of claim 1 and discloses (the references in parentheses applying to this document; cf. cited passages in the search report):

a process for the recovery of an ethylene and propylene containing stream from a cracked gas, wherein the cracked gas (1) is treated in an absorptive demethanizer (2) with a  $C_4/C_5$  solvent (3), at a temperature between 0 and  $-50^{\circ}\text{C}$  to free the cracked gas from methane and hydrogen (40), whereafter the remaining stream is treated by distillation in a distillation unit (14) to obtain a  $C_4/C_5$  stream and a  $C_2/C_3$  stream, whereafter part of the  $C_4/C_5$  stream is cooled to  $-40^{\circ}\text{C}$  and recycled to the absorptive demethanizer and a part of the  $C_4/C_5$  stream is separated.

3. The subject-matter of claim 1 differs from this known process in that the  $C_4/C_5$  stream is hydrogenated before being either separated or recycled as solvent to the absorptive demethanizer.

4. The subject-matter of claim is therefore new (Article 33(2) PCT).

5. The problem to be solved by the present invention may be regarded as employing a  $C_4/C_5$  solvent in an absorptive demethanizer, in the recovery of  $C_2/C_3$ , which solvent has been freed of unsaturated compounds (see description: p.3 ln.22-23).

6. D2 (cf. p.3 ln.16-27) discloses the hydrogenation of the remaining stream exiting the absorptive demethanizer, before  $C_2/C_3$  are separated from  $C_4/C_5$ , thereby effectively removing the unsaturated compounds from the  $C_4/C_5$  before it is recovered as a solvent to the absorptive demethanizer.

7. The solution proposed in claim 1 of the present application can therefore not be considered as involving an inventive step (Article 33(3) PCT).

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8. The same reasoning applies, mutatis mutandis, to the subject-matter of the corresponding independent claims 8 and 10, which therefore are also considered not inventive.

9. The combination of the features of dependent claims 2-7 and 9 is neither known from, nor rendered obvious by either D1 or D2.